



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,292	08/18/2003	Shinichi Aya	Q76987	2004

23373 7590 06/14/2005  
SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

RIELLEY, ELIZABETH A

ART UNIT	PAPER NUMBER
----------	--------------

2879

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/642,292

Applicant(s)

AYA ET AL.

Examiner

Elizabeth A. Rielley

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/18/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 25 and 26 in figure 4. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Art Unit: 2879

4. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms and phrases which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms and phrases used in the specification are: on page 2 line 26, the phrase "Although above advantages"; on page 3 lines 13-14 the sentence, "For a lens-fitted photo film unit with flash unit, a considerable low cost is required" are unclear.

#### *Claim Objections*

5. Claim 9 is objected to because of the following informalities: the phrase "alternative current" is unclear. For the purpose of this examination, the Examiner will understand the phrase to mean alternating current (AC). Appropriate correction is required.

#### *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harushige (JP 08-236023) in view of Nakamura et al (US 6000982) and Sakamoto (US 4103416).

8. Harushige ('023) teaches a method for manufacturing a discharge tube having a glass tube (1; paragraph 2), a glass bead (6; paragraphs 14-16) for sealing an end of said glass tube (paragraph 14), and an electrode lead (2b; paragraph 14) to be fixed to said glass bead (6), said method comprising the steps of: applying heat by use of a heat application device to oxidize a surface of a predetermined adhesion area of said electrode lead (paragraph 14); and fixing said glass bead to said adhesion area of said electrode lead (paragraphs 14-15). Harushige ('023) is silent regarding the limitations that a rare gas is put into the glass tube, and the heat application device oxidizes only a surface of a predetermined adhesion area.

Nakamura et al ('982) teaches the use of a rare gas into a discharge tube (column 1 lines 29-36) in order to increase the life to the discharge tube. Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the discharge tube made from the method of manufacturing of Harushige ('023) with the rare gas of Nakamura et al ('982). Motivation would be to increase the life of the discharge tube.

Both Nakamura et al and Harushige are silent regarding the limitation that the heat application device oxidizes only a surface of a predetermined adhesion area. Sakamoto ('416) teaches a method of manufacturing a discharge tube that oxidizes (28; figure 3) only a predetermined area (that of 28) of an electrode lead (20; figure 3) that is used for adhering a glass bead (30; column 5 lines 7-24) in order to improve electrical connections (column 3 lines 1-16). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to include in the method of manufacturing a discharge tube step of oxidizing, as taught by Harushige/Nakamura, oxidizing only the adhesion area, as taught by Sakamoto ('416). Motivation would be to improve the electrical connection of the device.

9. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harushige (JP 08-236023) in view of Nakamura et al (US 6000982) and Sakamoto (US 4103416) as applied to claim 1 above, and further in view of Kudo et al (US 6531811).

10. Harushige/Nakamura/Sakamoto teach all the limitations set forth, as described above, except the heat application device comprising a pair of electrode members and a power source that applies a predetermined voltage between said pair of electrode members to heat said adhesion area; a portion of said electrode member to contact said electrode lead is made of a conductive material; and a degree of oxidation of said adhesion area is adjusted by changing the voltage, the electric current, the energizing period of said power source, or a combination thereof. Kudo et al ('811) teaches a heat application device comprising a pair of electrode members (4; figure 1; column 1 lines 25-40) and a power source (figure 4) that applies a predetermined voltage (figure 4) between said pair of electrode members to heat said adhesion area (column 7 lines 27-33); a portion of said electrode member (4) to contact said electrode lead (1) is made of a conductive material (column 1 lines 25-39); and a degree of heating said area is adjusted by changing the voltage, the electric current, the energizing period of said power source, or a combination thereof (column 7 lines 27-33) in order to better heat (and thereby oxidize) an electrode. Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the method of manufacturing a discharge tube as taught by Harushige/Nakamura/Sakamoto with the heating device of Kudo et al ('811) in order to better heat the electrode.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harushige (JP 08-236023) in view of Nakamura et al (US 6000982) and Sakamoto (US 4103416) as applied to claim 1 above, and further in view of Horiuchi et al (US 6791271).

12. Harushige/Nakamura/Sakamoto teach all the limitations set forth, as described above, except the heat application device is a laser device that irradiates laser light to said adhesion area of said electrode lead. Horiuchi et al ('271) teaches using a laser to heat an electrode that is adhered to a glass tube (column 15 lines 24-37) in order to increase the life of the discharge tube (column 4 lines 15-29). Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the method of manufacturing a discharge tube, as taught by Harushige/Nakamura/Sakamoto, to include the teaching of heating the electrode by laser, as taught by Horiuchi et al. Motivation would be to increase the life of the discharge tube.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harushige (JP 08-236023) in view of Nakamura et al (US 6000982) and Sakamoto (US 4103416) as applied to claim 1 above, and further in view of Bundo et al (US 6354901).

14. Harushige/Nakamura/Sakamoto teach all the limitations set forth, as described above, except the heat application device is an infrared light device that irradiates infrared light to said adhesion area of said electrode lead. Bundo et al ('901) teaches a heat application device that is an infrared light device that irradiates infrared light to said adhesion area of said electrode lead (column 9 lines 16-30; column 8 line 44-63) in order form a more effectively heat the electrode. Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the method of manufacturing a discharge tube, as taught by Harushige/Nakamura/Sakamoto, to include the teaching of heating the electrode by infrared radiation, as taught by Bundo et al. Motivation to combine the teachings would be to more effectively heat the electrode.

15. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harushige (JP 08-236023) in view of Nakamura et al (US 6000982) and Sakamoto (US 4103416) as applied to claim 1 above, and further in view of Monneraye et al (US 4163656).

16. Harushige/Nakamura/Sakamoto teach all the limitations set forth, as described above, except the heat application device is a heater device that applies heat to said adhesion area of said electrode lead without contacting said electrode lead and heat application device is a ring-shaped ceramic heater with a hole to insert said electrode lead. Monneraye et al ('656) teach a ring-shaped ceramic heater as a heat application device (3; figure 1a; column 2 lines 60-63; column 3 lines 5-15) that contains a hole (2) into which the electrode (1) is inserted (the electrode (1) does not touch the ceramic heater (3) as seen by figure 1a) in order to heat the electrode more quickly. The Examiner notes that although Monneraye is silent about the ceramic ring being specifically a heater, when put into the heater (column 3 lines 5-10), the ceramic ring would conduct heat from the oven onto the electrode lead (1), thus becoming a heater itself. Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the method of manufacturing a discharge tube, as taught by Harushige/Nakamura/Sakamoto, to include the teaching of heating the electrode using a ceramic ring, as taught by Monneraye et al ('656). Motivation would be to heat the electrode more quickly.

17. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harushige (JP 08-236023) in view of Nakamura et al (US 6000982) and Sakamoto (US 4103416) as applied to claim 1 above, and further in view of Palmer et al (US 4271345).

18. Harushige/Nakamura/Sakamoto teach all the limitations set forth, as described above, except the heat application device is a high frequency induction heating device that is composed of a coil section that



covers said adhesion area without contacting said electrode lead and a high frequency power source section that generates alternative current with high frequency to said coil section, thereby induction current is flown in said electrode lead to oxidize only the surface of said adhesion area. Palmer et al ('345) teaches a high frequency induction heating device that is composed of a coil section (32; figure 2a; column 2 lines 51-65) that covers said adhesion area without contacting said electrode lead (38) and a high frequency power source section (column 2 lines 51-60) that generates alternative current with high frequency to said coil section (abstract), thereby induction current is flown in said electrode lead to oxidize only the surface of said adhesion area, in order to better heat the electrode. Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the method of manufacturing a discharge tube, as taught by Harushige/Nakamura/Sakamoto, to include the teaching of heating the electrode by a high frequency induction heating device as taught by Palmer et al ('345). Motivation would be to better heat the electrode.

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Goto (US 3544294), Gordon (US 2446277), Kiesel et al (US 4178050), and Ekkelboom et al (US 4086075) all teach methods of heating electrodes that are relevant to the present application.

### *Conclusion*

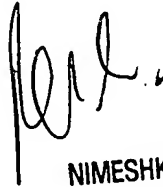
20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth A. Rielley whose telephone number is 571-272-2117. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Elizabeth Rielley

Examiner  
Art Unit 2879



NIMESHKUMAR D. PATEL  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800